

CLAIMS

1. Multistage centrifugal compressor comprising at least one stage 10 which, in turn, comprises a lower half-tank 11, an upper half-tank 12, a series of lower half-diaphragms 16, a shaft 13 equipped with a series of rotors 14, a series of upper half-diaphragms 18, a lower suction half-diaphragm 51, an upper suction half-diaphragm 52, characterized in that the lower suction half-diaphragm 51 and the upper suction half-diaphragm 52 include a portion 71 and a portion 72, respectively, suitable for being coupled with the lower half-diaphragms 16 and with the upper half-diaphragms 18, respectively, to form a first pile 41 of lower half-diaphragms 16 and a second pile 42 of upper half-diaphragms 18, respectively.
- 15 2. The multistage centrifugal compressor according to claim 1, characterized in that said shaped cylindrical section 71 comprises a series of annular housings 59 suitable for being coupled with lower half-diaphragms 16 and in that said shaped cylindrical section 72 comprises 20 a series of annular housings 60 for balancing the axial stress received during the functioning of the multistage centrifugal compressor.
- 25 3. The multistage centrifugal compressor according to claim 1, characterized in that each lower half-diaphragm 16 includes a section 81 suitable for being respectively

coupled with an internal housing 59 of the relative lower suction half-diaphragm 51, and in that each upper half-diaphragm 18 includes a section 82 suitable for being respectively coupled with an internal housing 60 of the 5 relative upper suction half-diaphragm 52.

4. The multistage centrifugal compressor according to claim 1, characterized in that the lower suction half-diaphragm 51 comprises a series of radial shaped grooves 61 and, correspondingly, the upper suction half-diaphragm 10 52 comprises a series of radial shaped grooves 62.

5. The multistage centrifugal compressor according to claim 1, characterized in that the lower suction half-diaphragm 51 includes a section with a shaped basis 63, open at the centre and, correspondingly, the upper suction 15 half-diaphragm 52 includes a section with a shaped basis 64, open at the centre.

6. The multistage centrifugal compressor according to claim 1, characterized in that the lower suction half-diaphragm 51 and the upper suction half-diaphragm 52 respectively include supporting feet to adapt the multi-stage centrifugal compressor to the configuration with a 20 horizontal opening of the tank.